

HLW:DHZ  
VI-5  
IX-6

DEPARTMENT OF COMMERCE  
BUREAU OF STANDARDS  
WASHINGTON

Letter  
Circular  
LC 191

Revised: July 22, 1929

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LIST OF MATERIALS TESTING LABORATORIES

The Bureau of Standards, as required by law, makes tests and investigations on governmental requests. In general, it does not undertake work for the public if other laboratories have the necessary equipment and personnel.

This list of commercial testing and college research laboratories was compiled by the Engineering Mechanics Section (VI-5) and the Cement and Concreting Materials Section (IX-6), National Bureau of Standards, Washington, D. C., to assist the public in selecting a testing laboratory.

Many of these laboratories do commercial testing, but some of them, particularly the laboratories at technical schools, do investigational work only. It is always advisable to discuss the proposed tests with several laboratories before making a selection.

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ALABAMA

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Southern Testing Laboratories, Inc., 2227 First Ave., So., Birmingham  
 Branch Laboratories: 127 Talleyrand Ave., Jacksonville, Fla.  
 22d St. & Hemlock Ave., Tampa, Fla.  
 5 Cahn Building, Shreveport, La.

J. F. Carle, President. Wm. Makemson, Vice-President.

Testing Machines

Universal - 100,000 lb. Olsen 4-screw  
 Compression - 200,000 lb. Olsen  
 " - 200,000 lb. with hydraulic gage  
 Impact - Olsen Paige  
 Hardness - Riehle Brinell  
 " - Olsen Dorry

Equipment for physical and chemical tests of cement.

Preferred work: A.S.T.M. standard tests, general commercial analyses and research. Field inspection of construction, construction materials and equipment.

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Robert W. Hunt Company, Bankers Bond Bldg., Birmingham  
 Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

T. C. Peace, Manager

Equipment for physical tests of cement.

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Pittsburgh Testing Laboratory, 1704 Second Ave., No., Birmingham  
 Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

M. Payne, Manager

Testing Machines

Universal - 400,000 lb. Riehle 3-screw  
 " - 100,000 lb. Olsen 4-screw  
 " - 20,000 lb. Olsen 4-screw  
 " - 2,000 lb. Olsen 4-screw  
 Compression - 200,000 lb. Watson-Stillman, hydraulic  
 Hardness - Brinell

Equipment for physical and chemical tests of cement.

Equipment for the preparation and testing of concrete and aggregates.

Equipment for testing road-building materials and U. S. Public Roads Bureau tools.

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Froehling & Robertson, Inc., Birmingham, also Ragland.  
 Main Office: 814 West Cary Street, Richmond, Va.

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 ARKANSAS
 

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University of Arkansas, College of Engineering, Fayetteville

W. N. Gladson, Dean and Director of Experiment Station

Testing Machines

Universal - 200,000 lb. Riehle 3-screw, longest specimen 8 ft.  
longest beam 16 ft.

" - 60,000 lb. Riehle 2-screw

" - 30,000 lb. Olsen 3-screw

Transverse - 6,000 lb. Riehle

Torsion - 60,000 in. lb. Olsen

Impact - Drop hammer

Hardness - Brinell

- 10,000 lb. Riehle for wire

Equipment for physical and chemical tests of cement.

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Barrow-Agee Laboratories, Inc., Little Rock

Main Office: 60 North Third St., Memphis, Tenn.

Equipment for physical and chemical tests of cement.

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CALIFORNIA

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University of California, Materials Testing Laboratory, Department  
of Civil Engineering, Berkeley

Raymond E. Davis, Professor of Civil Engineering. G. E. Troxell,  
Assistant Professor of Civil Engineering.

Testing Machines

Universal - 300,000 lb., longest specimen 4 ft. 3 in.

" - 200,000 lb., " " 5 " 0 "

longest beam 19 " 0 "

" - 100,000 lb., " specimen 1 " 6 "

" - 60,000 lb., " " 1 " 6 "

" - 30,000 lb., " " 6 " 0 "

" - 30,000 lb., " " 1 " 6 "

Tension - 10,000 lb., " " 6 " 6 "

Compression - 500,000 lb., " " 15 " 0 "

Transverse - 10,000 lb., " " 2 " 0 "

Torsion - 60,000 in. lb., " " 5 " 0 "

Fatigue - Upton-Lewis

" - Rotating beam

Impact - 223 lb. ft. Charpy

" - 1200 lb. ft. Hatt-Turner

" - Page

Hardness - Brinell

" - Rockwell

" - scleroscope

" - Dorry

Abrasion - Deval  
Cold Bend - Olsen

Apparatus for measuring deformation:

- Extensometers - Ewing, 2 in. and 8 in. gage
  - Last Word Dial, 2 in., 3 in. and 16 in. gage
  - Ames Dial, 2 in. and 8 in. gage
- Compressometers - Ames Dial, 6 in. gage
  - Last Word, 3 dials, 2 in. and 8 in. gage
  - Rotating mirror, 8 in. gage
- Strainometers - Carbon pile, 6 in. gage
  - Ames Dial for fiber deformation of 4 by 6 in. beams, 12 in. gage
  - Mirror for lateral deformation of 6 in. cylinders (Poisson's Ratio tests)
- Comparators - Microscopic 0 to 40 in. range
  - Ames Dial, 40 in. gage
- Strain Cages - Berry, 2 in., 8 in. and 20 in. gage
  - Fulcrum plate, 10 and 20 in. gage
- Miscellaneous - Brinell measuring microscope
  - Brinell depth gage (Ames Dial)
  - Deflectometer for beam deflections
  - Troptometer for torsion, 8 in. gage
  - Beggs apparatus

Equipment for physical tests of cement.

Equipment for special tests of concretes.

Deformation measured and stress curves furnished upon request.

Los Angeles Testing Laboratory, 1300-1308 South Los Angeles St.,  
Los Angeles

Roy Cross, President. Charles S. Howe, Vice-Pres. H.H. McCall, Sec.-  
Treas.

Testing Machines

Universal - 200,000 lb. Riehle

Equipment for physical and chemical tests of cement.

Preferred work: Inspection

The Twining Laboratories, 2146-8 Merced St., Fresno

F. E. Twining. H. C. English. Bland Casebolt.

Testing Machines

Compression - 200,000 lb. Watson-Stillman, hydraulic

Hardness - Brinell  
- Rockwell

Equipment for physical and chemical tests of cement.

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Raymond G. Osborne Laboratories, Rives-Strong Building, 110 West  
Minth St., Los Angeles

Raymond G. Osborne, Owner and Manager. F. E. Emme, Testing Engineer.

Testing Machines

Universal - 200,000 lb. Olsen 3-screw

" - 150,000 lb. Olsen 3-screw

Extensometer, Riehle, reading to ten thousandths of an inch.

Equipment for physical and chemical tests of cement.

Equipment for the preparation and testing of concrete, aggregates, and permeability.

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H. E. Morse Metallurgical Laboratories, 954 Howard St., San Francisco

R. W. Davis, Chief Chemist.

Testing Machines

- 10,000 lb. Olsen for wire

Torsion - for wire, according to A. P. I. specifications

Bend - for wire, according to A. P. I. specifications

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Smith-Emery Company, 920 Santee St., Los Angeles

W. C. Bass, President. B. E. Sandrock, Secretary.

Testing Machines

Universal - 100,000 lb. Olsen 4-screw, including extensions  
in height for rope and cable testing.

Hardness - Brinell

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Preferred work: Routine tensile, transverse and bending tests of steel and reinforcing bars. Also rope, cable and wire tests.

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Stanford University, Materials Laboratory, Stanford University

Charles Moser, Professor in charge.

Testing Machines

Universal - 200,000 lb.

" - 100,000 lb.

" - 30,000 lb.

" - 20,000 lb.

Torsion - 24,000 in. lb.

Fatigue -

Hardness - scleroscope

" - Ball Point

Cold Bend

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and aggregates

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California Institute of Technology, Materials Testing Laboratory,  
Pasadena

F. W. Hinrichs, Jr., Professor of Mechanics.

Testing Machines

Universal - 150,000 lb. Olsen 3-screw, with an extra set of  
heads having jaws 14 in. wide designed  
for belt testing.

" - 30,000 lb. Riehle 2-screw

Torsion - 50,000 in. lb. Olsen. Will take specimens up to  
1 1/2 in. in diam. and 60 in. in length

Fatigue - Rotating cantilever beam for metals, capacity 10  
specimens. Designed here.

Hardness - Brinell

- scleroscope

Equipment for physical and chemical tests of cement

Preferred work: Investigations of properties of new materials,  
improvements of manufactured articles, and research

All results obtained, under a recent ruling of the Board of  
Trustees, are available for publication by the Trustees at their  
option.

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Charles C. Kawin Company, 693 Mission St., San Francisco  
Main Office: 3300 Federal St., Chicago, Ill.

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Robert W. Hunt Company, 251 Kearney St., San Francisco  
Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

F. M. Randlett, Manager

Testing Machines  
Universal - 200,000 lb. Riehle

Equipment for physical tests of cement

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Robert W. Hunt Company, Citizens National Bank Bldg., Los Angeles  
Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

H. T. Pathaway, Manager

Testing Machines  
Universal - 150,000 lb. Riehle  
Equipment for physical tests of cement

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#### CANADA

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Canadian Inspection & Testing Co., Ltd., 100 Jarvis St., Toronto,  
Ontario  
Branch Laboratory: 405-6 Shaughnessy Bldg., McGill St., Montreal

R. J. Marshall, Pres. R. R. Deans, Vice-Pres. and General Manager.  
R. W. Hurlburt, Engineer of Tests.

Testing Machines  
Universal - 150,000 lb. Olsen  
" - 10,000 lb. Olsen  
Compression - 200,000 lb. Watson-Stillman, hydraulic  
Hardness - Brinell

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates

Preferred work: Tests of metals, building materials and concrete  
materials

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University of Toronto, Mechanics of Materials Laboratory, Toronto,  
Ontario

Peter Gillespie, Professor of Civil Engineering.

Testing Machines  
Universal - 400,000 lb. Riehle 3-screw, longest specimen 10 ft.  
" beam 16 ft.  
" - 200,000 lb. Riehle 2-screw, " specimen 12 ft.  
beam 18 ft.

Universal - 100,000 lb. Riehle  
" - 20,000 lb. Riehle  
- 100,000 lb. Emery, hydraulic  
Tension - 30,000 lb. Buckton  
Torsion - Olsen, specimens up to 2 in. diam. and 16 ft. long  
Impact - Olsen, combined tension and cantilever type  
- 20,000 lb. Olsen for wire

Equipment for physical and chemical tests of cement

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McGill University, Materials Testing Laboratory, Montreal, Quebec

S. D. McNab, Superintendent. H. M. MacKay, Prof. of Civil Engr.

Testing Machines

Universal - 240,000 lb. Wicksteed single lever, hydraulic  
Tension specimens to 5 in. diam.  
Compression " to 5 ft. 6 in.  
Transverse - length 26 ft., width 10 in.  
" - 150,000 lb. Emery, hydraulic  
Tension specimens to 6 ft.  
Compression " to 7 ft.  
Transverse, length 16 ft., width 2 ft.  
6 in.  
" - 100,000 lb. Wicksteed single lever, hydraulic  
" - 60,000 lb. Riehle 2-screw  
" - 10,000 lb. Olsen 2-screw  
Torsion - (small) specimens to about 1-1/4 in. diam.  
Hardness - Brinell  
" - Rockwell  
" - scleroscope  
Extensometers and strain gages, Amsler calibrating box  
Mirror extensometers of the Martens type with accessories

Preferred work: Research

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Robert W. Hunt Co., Ltd., 901 McGill Building, Montreal, Quebec  
Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

R. B. Jennings, Manager. F. O. Farey, Engineer of Tests.

Testing Machines

Universal - 100,000 lb. Olsen 3-screw  
Hardness - Brinell  
" - scleroscope  
Apparatus for measuring deflections of beams  
Equipment for physical tests of cement  
Inspects engineering materials

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Canadian Inspection Testing Co., Ltd., 405-6 Shaughnessy Bldg.,  
Montreal, Quebec.  
Main Office: 100 Jarvis St., Toronto, Ontario

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Robert W. Hunt Company, Ltd., 618 Standard Bank Building, Vancouver  
Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

W. A. Goddard, Manager

Testing Machines

Compression - 200,000 lb. Olsen, hydraulic

Equipment for physical tests of cement

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Robert W. Hunt Company, Ltd., 1023 Bank of Hamilton Bldg., Toronto,  
Ontario

Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

J. F. Kean, Manager

Equipment for physical tests of cement

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COLORADO

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The Colorado State Agricultural College, Testing Laboratories,  
Civil and Irrigation Engineering Building, Fort Collins

E. B. House, Prof. of Civil and Irrigation Engineering. D. J. Tripp,  
Testing Engineer.

Testing Machines

Universal - 150,000 lb. Riehle 2-screw, transverse specimens  
up to 16 ft. long

" - 50,000 lb. Riehle 2-screw

Hardness - Olsen

Abrasion - Olsen

Equipment for physical tests of cement

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Colorado College, Civil Engineering Material Testing Laboratory,  
Colorado Springs

Frank M. Okey, Professor of Civil Engineering.

Testing Machines

Universal - 100,000 lb. Riehle 2-screw

Impact - 1,000 kgm

Abrasion - Deval, single cylinder

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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University of Colorado, Materials Testing Laboratory, Department  
of Civil Engineering, Boulder

C. L. Eckel, Head of Department of Civil Engineering. H. J.  
Gilkey, Head of Materials Testing Laboratory.

Testing Machines

Universal - 200,000 lb. Riehle 2-screw  
" - 150,000 lb. Olsen 3-screw  
" - 100,000 lb. Olsen 4-screw  
" - 30,000 lb. Olsen 4-screw  
Transverse - 10,000 lb. Olsen, hand operated  
Torsion - 50,000 in. lb. Olsen  
Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates

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Colorado School of Mines, Golden

H. W. Gardner, Professor of Civil Engineering.

Testing Machines

Universal - 100,000 lb. Riehle 2-screw  
" - 50,000 lb. Olsen 3-screw  
Transverse - 200,000 lb. Riehle 3-screw, beams up to 6 ft.,  
span and columns up to 7 ft. 6 in.  
long  
Fatigue - R. R. Moore rotating beam  
Hardness - Brinell  
" - scleroscope  
Equipment for physical tests of cement

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CONNECTICUT

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Yale University, Sheffield Scientific School, Sheffield Labora-  
tory of Engineering Mechanics, 51 Prospect St., New Haven

C. J. Tilden, Professor of Engr. Mech. P. G. Laurson, Assoc. Prof.  
of Engr. Mech. W. J. Cox, Asst. Prof. of Engr. Mech.

Testing Machines

Universal - 150,000 lb. Riehle 2-screw  
" - 100,000 lb. Riehle 2-screw  
" - 50,000 lb. Riehle 2-screw  
" - 50,000 lb. Amsler  
" - 10,000 lb. Riehle 2-screw  
Tension - 2,000 lb. Riehle  
Transverse - 2,000 lb. Riehle  
Torsion - 10,000 in. lb. Olsen Pendulum  
Fatigue  
Hardness - Brinell  
" - scleroscope  
Equipment for physical tests of cement

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The Henry Souther Engineering Co., 11 Laurel St., Hartford  
James A. Newlands, Pres. Frank P. Gilligan, Secretary-Treasurer.

Testing Machines

Universal - 100,000 lb. Olsen 3-screw  
Hardness - Brinell  
" - Rockwell  
" - scleroscope

Equipment for determining the strength of materials at high temperatures

Equipment for physical tests of cement

Preferred work: Tests of ferrous and non-ferrous metals

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The Stanley P. Rockwell Co., 66 Trumbull St., Hartford

Stanley P. Rockwell, President. Raymond W. Woodward, Secretary.

Testing Machines

Universal - 100,000 lb.  
" - 50,000 lb.  
Hardness - Rockwell

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CUBA

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H. C. Nutting Co., Teniente Rey No. 33, Havana

Main Office: H. C. Nutting Co., Elmwood Place Station,  
Cincinnati, Ohio

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DELAWARE

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University of Delaware, Civil Engineering Testing Laboratory,  
Newark

Howard K. Preston, Professor of Mechanics

Testing Machines

Universal - 100,000 lb. Olsen 4-screw  
" - 30,000 lb. Olsen 4-screw  
Impact - Riehle Page  
Hardness - 3,000 kg. Brinell  
" - Dorry

Proving Ring for calibration - 50,000 lb.

Deformation measured and stress curves furnished upon request

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Preferred work: Tests of concrete cylinders, building blocks,  
and mechanical tests of metals.

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DISTRICT OF COLUMBIA

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Research Service, Inc., 810 18th St., N. W., Washington

Research Staff: F. H. Newell, W. M. Corse, and A. B. McDaniel.

Consulting work and investigations along engineering lines

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Industrial Research Laboratories, Inc., 2201 New York Ave.,  
Washington

George W. Coggeshall, Director.

Testing Machines

Universal - 150,000 lb.  
Tension - Scott  
Apparatus for testing paper

Equipment for physical and chemical tests of cement

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FLORIDA

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University of Florida, College of Engineering and Architecture,  
Gainesville

J. R. Benton, Dean.

Testing Machines

Universal - 400,000 lb. Olsen 3-screw  
" - 125,000 lb. Emery-Tatnall, hydraulic  
" - 50,000 lb. Olsen 2-screw  
Torsion - 3,000 in. lb. Olsen  
Impact - 120 lb. ft. Bultman  
Hardness - Brinell

Apparatus for testing pumps up to 400 gal. per min.

Equipment for physical and chemical tests of cement

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Pittsburgh Testing Laboratory, 704 South Nebraska Ave., Tampa  
Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

P. R. Yoakley, Manager

Testing Machines

Compression - 200,000 lb. Watson-Stillman, hydraulic

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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Southern Testing Laboratories, Inc., 127 Talleyrand Ave., Jacksonville

Main Office: 2227 First Ave., South, Birmingham, Ala.

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Southern Testing Laboratories, Inc., 22d St., and Hemlock Ave., Tampa

Main Office: 2227 First Ave., South, Birmingham, Ala.

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H. C. Nutting Co., Nebraska & Water Sts., Tampa

Main Office: Elmwood Place Station, Cincinnati, O.

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#### GEORGIA

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Georgia School of Technology, Experimental Engineering Laboratory, Atlanta

H. W. Mason, in charge.

##### Testing Machines

Universal - 100,000 lb. Riehle 2-screw

" - 50,000 lb. Olsen 4-screw

Compression - 300,000 lb., hydraulic 4-screw, 14 in. between screws, 26 in. between heads.

Torsion - 26,000 in. lb. Olsen

Hardness - Brinell

Dead Weight apparatus for calibrating pressure gages

Equipment for physical tests of cement

Preferred work: Calibration of instruments

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Georgia School of Technology, Highway Materials Testing Laboratory, Atlanta

F. C. Snow and J. H. Lucas, in charge.

##### Testing Machines

Compression - 350,000 lb., specimens up to 12 by 16 by 24 in.

Transverse - for concrete beams 6 in. by 6 in. by 48 in.

Impact - Page

Hardness - Dorry

Abrasion - Deval

Equipment for physical tests of cement

Preferred work: Inspection and tests of building materials

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HAWAII

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University of Hawaii, Engineering Laboratory, Honolulu

A. R. Keller, Professor of Civil Engineering.

Testing Machines

Universal - 150,000 lb. Riehle 2-screw  
" - 20,000 lb. Olsen 4-screw  
Transverse - 10,000 lb. Riehle, 12 ft. bed  
Torsion - 50,000 in. lb. Olsen  
Impact - Page  
Hardness - Brinell  
" - Dorry  
Friction - Thurston  
Proving Ring - 50,000 lb. Brinell-Olsen  
Abrasion - Dorry  
Paper - Mullen

Equipment for physical tests of cement.

Deformation measured and stress curves furnished upon request

Preferred work: Mechanical tests of metals

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IDAHO

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University of Idaho, Materials Testing Laboratory, Moscow

Ivan C. Crawford, Dean of College of Engr., J. E. Buchanan, Testing Engineer.

Testing Machines

Universal - 200,000 lb. Olsen 4-screw  
" - 50,000 lb. Riehle 3-screw

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Preferred work: Tests of steel and building materials

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ILLINOIS

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Research Laboratory of the Portland Cement Association, 33 West Grand Avenue, Chicago

F. R. McMillan, Dir. of Research. H. F. Gonnerman, Mgr. of Lab.

Testing Machines

Universal - 300,000 lb. Riehle 2-screw  
" - 200,000 lb. Olsen 4-screw  
" - 50,000 lb. Riehle 3-screw  
" - 20,000 lb. Riehle 2-screw

Preferred work: Investigations only.

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Robert W. Hunt Co., 445 N. Sacramento Blvd., Chicago  
Branch Laboratories: Syndicate Trust Bldg., St. Louis, Mo.  
Bankers Bond Bldg., Birmingham, Ala.  
53 Park Place, New York, N. Y.  
Bank of Hamilton Bldg., Toronto, Ont.  
251 Kearney St., San Francisco, Calif.  
Seattle, Washington  
Standard Bank Bldg., Vancouver, B. C.  
Citizens National Bank Bldg., Los Angeles, Calif.  
Professional Bldg., Pittsburgh, Pa.  
Orear-Leslie Bldg., Kansas City, Mo.  
901 McGill Bldg., Montreal, Quebec

C. B. Nolte, General Manager. H. S. Bowen, Engineer of Tests.

#### Testing Machines

Universal - 300,000 lb. Riehle, special holders for tensile tests of guard rail clamps.  
" - 50,000 lb. Riehle  
Tension - 200 lb. and 1,000 lb. Riehle horizontal  
Compression - 400,000 lb. Watson-Stillman  
Fatigue - Rotating beam  
Impact  
Hardness - Rockwell  
" - scleroscope  
" - Dorry  
Abrasion - Deval  
Apparatus for compression tests of steel balls under the three ball method.  
Apparatus for shearing tests on thin sheet metal  
Strain Gages: Berry for 2 in. and 8 in. gage lengths  
Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and aggregates

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Charles C. Kawin Company, 431 South Dearborn St., Chicago  
Branch Laboratories: 110 Pearl St., Buffalo, N. Y.  
222 W. Fourth St., Cincinnati, O.  
693 Mission St., San Francisco, Calif.

Charles C. Kawin, Pres. John Tissing, Vice-President.

#### Testing Machines

Tension - 60,000 lb. Olsen  
Transverse - for cast iron specimens  
Hardness - Brinell

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Armour Institute of Technology, 3300 Federal St., Chicago

G. F. Gebhardt, Prof. of Mech. Engineering, Head of Dept.

P. C. Huntly, Assoc. Prof. of Mechanical Engineering.

Testing Machines

Universal - 400,000 lb., longest comp. spec. 10 ft., longest beam 24 ft.

" - 200,000 lb., longest ten. & com. spec. 4 ft.  
longest beam 10 ft.

" - 60,000 lb., longest ten. & com. spec. 2 ft.  
longest beam 10 ft.

" - 50,000 lb., longest com. spec. 7 ft., longest beam 10 ft.

" - 10,000 lb., longest ten. spec. 6 ft., longest beam 8 ft.

Torsion - 4,200 in. lb., longest specimen 6 ft.

Impact - 50 lb., highest drop 5 ft.

Hardness - Brinell

" - scleroscope

Cold Bend - 5,000 ft. lb.

Drop - 9,000 lb., 20 ft. drop, Master Car Builders

Apparatus for tensile tests of metals up to 1,600 deg. Fahr.

Deformation measured and stress curves furnished upon request

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Mr. Ivan Racheff, Testing and Metallurgical Engineering, 540 W.  
Washington Blvd., Chicago

Preferred work: No commercial tests, but specializes in research, control and the solving of problems of manufacture or use of metals. About ninety per cent of the work is on steel, inspection and tests.

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Materials Testing Laboratory of Lewis Institute, 1951 W. Madison St., Chicago

J. Gardner Bennet, in charge.

Testing Machines

Universal - 200,000 lb. Olsen, width between screws 14 in.  
rise of testing head 36 in.

" - 40,000 lb. Riehle, width between screws, 12 in.  
rise of testing head, 30 in.

Torsion - 24,000 in. lb. Olsen

Hardness - Brinell

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Deformation measured and stress curves furnished upon request

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Pittsburgh Testing Laboratory, 205 West Wacker Drive, Engineers  
Building, Chicago  
Main Office: Stevenson & Locusta Sts., Pittsburgh, Pa.

H. H. Holmes, Manager

Testing Machines

Universal - 150,000 lb. Riehle 4-screw  
Compression - 400,000 lb. Watson-Stillman, hydraulic  
" - 100,000 lb. Pipe testing machine, hydraulically  
operated

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates

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Gulick-Henderson Co., Inc., 431 South Dearborn St., Chicago  
Main Office: 145 West 36th St., New York, N. Y.

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INDIANA

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Rose Polytechnic Institute, Materials Testing Laboratory, Terre  
Haute

R. L. McCormick, Professor in charge.

Testing Machines

Universal - 200,000 lb. Olsen 4-screw  
" - 100,000 lb. Riehle 2-screw  
Compression - 200,000 lb. Olsen  
" - 30,000 lb.  
Transverse - 100,000 lb.  
Torsion - 250,000 in. lb.  
Impact - Pendulum for momenta up to 50 lb.ft/sec. for single  
impact  
Hardness - Brinell  
- 10,000 lb. for wire

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates

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Purdue University, Testing Materials Laboratory, Lafayette

A. A. Potter, Dir., Engr. Exp. Station and Dean of Schools of Engr.  
R. B. Crepps, Asst. Prof. of Testing Materials. W. H. Hatte, Dir.  
of Laboratory.

Testing Machines

Universal - 300,000 lb. 2-screw  
" - 200,000 lb. 2-screw  
" - 200,000 lb. 2-screw with extension table for 16 ft.  
beam specimen.

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Universal - 100,000 lb. 4-screw  
" - 50,000 lb. 2-screw  
" - 30,000 lb. 4-screw  
Compression and Flexure - 150,000 lb., hydraulic  
Torsion - 60,000 in. lb.  
Impact - Hatt-Turner, 500 lb. hammer, 10 ft. fall.  
Hardness - Brinell  
" - Rockwell  
" - Scleroscope  
Strain Gages and other instruments for measuring deformation  
to .0001 inch.  
Equipment for physical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates

Preferred work: Research

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IOWA

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Iowa Engineering Experiment Station, Ames

Anson Marston, Director

Testing machines up to 200,000 lb. capacity for testing structural  
and building materials.

Equipment for physical tests of cement  
Deformation measured

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University of Iowa, College of Engineering, Iowa City

S. M. Woodward, in charge.

Testing Machines

Universal - 200,000 lb. Olsen 4-screw, longest spec. 10 ft.  
longest beam, 16 ft.  
" - 100,000 lb. Riehle 2-screw  
" - 50,000 lb. Riehle 4-screw

Equipment for physical and chemical tests of cement

Preferred work: Large scale hydraulic tests, tests of concrete  
materials, and metals.

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Patzig Testing Laboratories, 210 11th St., Des Moines

Resident inspectors in Chicago, St. Louis, Kansas City, Omaha,  
Minneapolis and Portland, Oregon.

Monroe L. Patzig, Dir. and Mgr. R. G. King, First Assistant.

Testing Machines

Universal - 200,000 lb. Olsen  
Compression - 300,000 lb. Elms, hydraulic  
Impact - Page



Hardness - Brinell  
Abrasion - Deval

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete  
and aggregates

Preferred work: Inspection and research on steel or other metal  
products, testing and analyzing

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#### KANSAS

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Kansas State College, RoadsMaterials Laboratory, Engineering  
Experiment Station, Manhattan

C. H. Scholer, Professor in charge. W. L. Leshner, Engineer of Tests.

#### Testing Machines

Universal - 200,000 lb. Olsen 4-screw with long beam and  
column extension  
" - 100,000 lb. Riehle 2-screw  
" - 50,000 lb. Riehle 2-screw  
Compression - 300,000 lb. Riehle, hydraulic

Equipment for physical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates  
Equipment for freezing and thawing

Preferred work: Highway materials or concrete

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#### KENTUCKY

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Janes & Breckler, Inc., Commercial Building, 107 So. Fourth St.,  
Louisville

Wm. E. Janes, Pres. & Chief Chemist. R. A. Dean, Secretary, in  
charge of physical testing.

#### Testing Machines

Universal - 100,000 lb.  
Equipment for physical and chemical tests of cement

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LOUISIANA

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Louisiana State University, Materials Laboratory, Baton Rouge

B. W. Pegues, Professor of Civil Engineering.

Testing Machines

Universal - 200,000 lb.

" - 50,000 lb.

" - 40,000 lb. for testing sewer pipe

Impact - Page

Bending - For iron and steel specimens

Abrasion - Deval

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and aggregates

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Tulane University, College of Engineering, St. Charles Ave.,  
New Orleans

W. B. Gregory, Professor of Experimental Engineering. J. H. Robert,  
Professor of Machine Design.

Testing Machines

Universal - 125,000 lb.

Equipment for physical tests of cement

Deformation measured and stress curves furnished upon request  
preferred work: Mechanical tests

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Pittsburgh Testing Laboratory, 816 Howard Ave., New Orleans

Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

Van G. Webb, Manager

Testing Machines

Compression - 200,000 lb. Watson-Stillman, hydraulic

" - 100,000 lb. P.T.L.-type, hydraulic, for pipe  
testing

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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Southern Testing Laboratories, Inc., 5 Cahn Bldg., Shreveport

Main Office: 2227 First Ave., South, Birmingham, Ala.

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Barrow-Agee Laboratories, Inc., P. O. Box 858, Shreveport

Main Office: 60 North Third St., Memphis, Tenn.

J. R. Mays, Jr., Manager.

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MAINE

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University of Maine, Crosby Laboratory, Orono

W. J. Sweetser, Professor of Mechanical Engineering.

Testing Machines

Universal - 150,000 lb. Riehle 2-screw

" - 60,000 lb. Riehle 2-screw

Torsion - 1,000 ft. lb. Gebreder-Amsler

Fatigue - 20,000 lb. (University of Maine)

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Preferred work: Tensile, compressive, or torsion tests

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Maine Technology Experiment Station, Wingate Hall, Orono

Paul Cloke, Director. H. Walter Leavitt, Testing Engineer.

Testing Machines

Universal - 100,000 lb. Olsen 3-screw

Compression - 25,000 lb. Fisher

Abrasion - Deval

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Preferred work: Highway materials

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MARYLAND

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Penniman & Browne or The Baltimore Testing Laboratory, 341 St.  
Paul Place, Baltimore

W. B. D. Penniman and A. L. Browne, partners.

Testing Machines

Universal - 200,000 lb. Olsen 4-screw

Equipment for physical and chemical tests of cement

Preferred work: Work dealing with the operation of large corporations primarily.

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Johns Hopkins University, Mechanical Engineering Department,  
Homewood, Baltimore

A. G. Christie, Prof. of Mechanical Engineering. F. W. Kouwenhoven,  
Associate in Mechanical Engineering.

Testing Machines

Universal - 100,000 lb. Riehle 2-screw

" - 50,000 lb. Riehle 2-screw

Universal - 50,000 lb. Olsen 3-screw  
 Tension - 1,000 or 10,000 lb. Olsen for wire  
 Torsion - 60,000 in. lb. Riehle  
 Impact - 120 kgm Charpy or Izod  
 Apparatus for measuring deformation: Strain Gages - Berry,  
 2, 8 and 20 inches

Equipment for physical tests of cement

preferred work: Tests of metals

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University of Maryland, Engineering Laboratory, College Park

A. N. Johnson, Dean of the College of Engineering.

#### Testing Machines

Universal - 100,000 lb. Riehle 3-screw  
 " - 100,000 lb. Riehle 2-screw  
 Extensometers for elastic measurements of both steel and  
 concrete. Mirror extensometer used in the latter tests.  
 Equipment for physical tests of cement  
 Deformation measured and stress curves furnished upon request

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### MASSACHUSETTS

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Massachusetts Institute of Technology, Laboratories for the Test-  
 ing of Materials, 222 Charles River Road, Cambridge

H. W. Hayward, Prof. of Materials of Engr., Dir. of Labs.

I. H. Cowdrey, Associate Professor.

#### Testing Machines

Universal - 400,000 lb. for 8 ft. specimens  
 " - 100,000 lb. for 24 ft. beams  
 " - 100,000 lb. (Outrigger) for 16 ft. specimens  
 " - 100,000 lb.  
 " - 60,000 lb.  
 " - 50,000 lb.  
 " - 20,000 lb.  
 " - 10,000 lb.  
 Compression - 1,000,000 lb. Amsler type (vertical)  
 " - 300,000 lb. Emery type, horizontal  
 Torsion - 60,000 in. lb. Twists left-handed  
 " - 20,000 in. lb. " " "  
 " - Small wire machine  
 Fatigue - Moore  
 Impact - 120 kgm Charpy  
 " - 120 lb. ft. Izod  
 Hardness - Brinell  
 " - Rockwell  
 " - scleroscope  
 Bending - Oken, takes 1-1/4 in. sq. soft steel  
 Vertical (wire tester) - 2,000 lb.  
 " (wire tester) - 4,000 lb.  
 Horizontal Rope & Cable - 80,000 lb.

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates

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Tufts College Strength of Materials Laboratory, Tufts College

Edwin H. Wright, Professor in charge.

Testing Machines

Universal - 150,000 lb. Riehle  
" - 60,000 lb. Olsen  
Transverse - Riehle, longest beam 9 ft.

Equipment for physical and chemical tests of cement

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Skinner, Sherman & Esselen, Inc., 246 Stuart St., Boston

H. L. Sherman, Treasurer. W. A. Chapman, Chief Analyst.

Equipment for physical and chemical tests of cement

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The Thompson & Lichtner Co., Inc., Statler Building, Boston

Miles N. Clair, Vice-President, Director of Testing & Research

Testing Machines

- 250,000 lb. Watson-Stillman, hydraulic with auxiliary  
range of 20,000 lb.  
Cantklever Beam - for small specimens

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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Preferred work: Inspection, research, and special investigations.  
Inspection of concrete, cement and reinforcing  
structural steel.

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Arthur D. Little, Inc., 30 Charles River Road, Cambridge

Arthur D. Little, Pres. E. P. Stevenson, Vice-Pres. and Director  
of Research. R. C. Griffin, Director of Tests.

Equipment for physical and chemical tests of cement

Deformation measured and stress curves furnished upon request

Preferred work: Tests of metals and miscellaneous testing for  
the industries.

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Worcester Polytechnic Institute, Mechanical Engineering Laboratory,  
Worcester

Francis W. Roys, Professor in charge.

Testing Machines

Universal - 400,000 lb., longest specimen 10 ft., longest  
beam 20 ft.  
" - 100,000 lb. Emery, hydraulic, longest specimen 10 ft.  
" - 100,000 lb.  
" - 50,000 lb.  
" - 10,000 lb., longest specimen 3 ft.  
Tension - 20,000 lb. Wickstead, longest specimen 20 in.  
Impact - 30 kgm Charpy

Equipment for physical and chemical tests of cement

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MICHIGAN

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The Detroit Testing Laboratory, 554 Bagley Avenue, Detroit

Wm. P. Putnam, Pres. and General Mgr., J. D. Stoddard, Vice-Pres.

Testing Machines

Universal - 100,000 lb. Riehle 2-screw  
Compression - 200,000 lb. Olsen, hydraulic  
Torsion - 125,000 in. lb. Riehle. Will take 3 in. specimens.  
Hardness - Brinell  
" - Rockwell  
" - scleroscope  
- 10,000 lb. Olsen for wire

Equipment for physical and chemical tests of cement

Preferred work: General testing and inspection

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Perry Testing Laboratory, 201 Third Street, Detroit

Ralph W. Perry, Director.

Testing Machines

Universal - 300,000 lb. Olsen 4-screw, longest beam 16 ft.

Equipment for physical and chemical tests of cement

Preferred work: Testing industrial and structural materials  
or plant inspection of materials

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University of Michigan, Materials Testing Laboratory, Ann Arbor

F. N. Menefee, Professor of Engineering Mechanics

Testing Machines

Universal - 200,000 lb. Riehle 2-screw having adapters permitting six ft. tensile specimens and belts 15 in. wide  
" - 100,000 lb. Olsen 4-screw  
" - 50,000 lb. Riehle 2-screw  
Transverse - 10,000 lb. Riehle, 8 ft., hand operated  
" - 10,000 lb. Olsen  
Torsion - 230,000 in. lb. Olsen, 2-7/8 in. diam. maximum specimen size  
Impact - 100 lb. ft. Olsen  
- Charpy  
Hardness - Brinell  
Bending - Olsen 2-1/2 in. diam. rod capacity  
Equipment for physical tests of cement

Preferred work: Unusual tests where special set-ups are required.

TIMBER TESTING LABORATORY, School of Forestry and Conservation, Ann Arbor

W. Kynoch, Associate Professor of Wood Technology

Testing Machines

Universal - 60,000 lb. Riehle, 3-rotating reversed screw  
" - 50,000 lb. Riehle 2-screw

Equipped with accessories required for the testing of small clear specimens of timber in accordance with the standard methods of the American Society for Testing Materials  
Wood-working machinery for the preparation of test specimens.

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The University of Detroit Physical Testing Laboratory, Livernois and Florence Avenues, Detroit

David P. Gilmore, Professor of Civil Engineering.

Testing Machines

Universal - 100,000 lb. Olsen 4-screw  
Torsion - for steel stock up to 1 in. in diam.  
Hardness - Brinell

Equipment for physical and chemical tests of cement  
Equipment for the tests of aggregates.

Preferred work: Physical tests of metals and standard tests of cement

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The Forest City Testing Laboratory Co., 429 Griswold St., Detroit  
Main Office: 507-19 Superior Bldg., Cleveland, O.

Harold Watson Bates, Vice-President.

Testing Machines

Compression - 200,000 lb.

Equipment for testing paving and building materials

Preferred work: Physical and research

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Pittsburgh Testing Laboratory, 429 Wayne Street, Detroit  
Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

C. W. Dambrun, Manager

Testing Machines

Universal - 400,000 lb. Riehle 3-screw

Compression - 200,000 lb. Watson-Stillman, hydraulic

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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MINNESOTA

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University of Minnesota, School of Mines and Metallurgy, Department  
of Metallography, Minneapolis

W. R. Appleby, Prof. of Metallurgy, O. E. Harder, Prof. of Metallography.

Testing Machines

Universal - 300 kg. Amsler, measures deformation autographically  
Stress curves furnished

Impact - 32 kgm Charpy

Hardness - Brinell, Standard and Baby

" - Rockwell

" - scleroscope

" - Vickers

Preferred work: Special work in metallography, examination of gold  
alloys for fusion temperature or range, casting  
test specimens and determining their properties

College of Engineering and Architecture (University of Minnesota)

O. M. Leland, Dean. F. B. Rowley, Dir. Exp. Engr. Laboratories.

## Testing Machines

## Capacity of Specimen

Universal - 400,000 lb. 4-screw, 12 ft. 8 in. long  
 " - 200,000 lb. 4-screw, 10 ft. 3 in. long  
 " - 100,000 lb. 4-screw, 28 in. long  
 " - 50,000 lb. 3-screw, 25 in. long  
 Transverse - 10,000 lb., 8 ft. long, diam. 2 in. by 8 in.  
 " - 10,000 lb., 24 in. long, diam. 2 in.  
 " - 5,000 lb., autographic, 12 in. long, diam. 1-1/4 in.  
 Torsion - 60,000 in. lb., 5 ft. 6 in. long, diam. 2 in.  
 Impact - 120 kgm Charpy, 3/8 in. by 3/8 in.  
 Hardness - 3,000 kg. Brinell  
 " - Rockwell, thickness up to 8 in.  
 " - scleroscope  
 Cold Bend - Olsen No. 2, 2 in. sq. or round or 6 in. flat.  
 Apparatus for measuring deformation  
 4 specially constructed straingraphs  
 Strain gages and extensometers  
 Ames dials, ranges 0.001 in., 0.0001 in., 0.0002 in.

Equipment for physical and chemical tests of cement

Deformation measured and stress curves furnished upon request.

Preferred work: Special investigations or reference testing

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Van Cleve Laboratories, Inc., 322 So. Fourth St., Minneapolis

A. D. Bell, Manager

## Testing Machines

Universal - 200,000 lb. Riehle

Equipment for physical and chemical tests of cement

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Minnesota Testing Laboratories, 318 Glencoe Building, Duluth

C. A. Graves, President:

## Testing Machines

Universal - 100,000 lb. Riehle 3-screw

Equipment for physical and chemical tests of cement

Deformation measured and stress curves furnished upon request

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MISSISSIPPI

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Barrow-Agee Laboratories, Inc., Pearl St., Jackson  
Main Office: 60 North Third St., Memphis, Tenn.

J. C. Burt, Manager

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MISSOURI

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Missouri School of Mines & Metallurgy, Department of Metallurgy  
and Ore Dressing, Rolla

Chas. Y. Clayton, Prof. of Metallurgy and Ore Dressing. D. F.  
Walsh, Assist. Prof. of Metallurgy and Ore Dressing.

Testing Machines

Universal - 200,000 lb.  
" - 50,000 lb.  
Torsion - 60,000 in. lb. Parsons  
Impact - 120 kgm Sharpe  
Hardness - Brinell  
" - Rockwell  
" - scleroscope

Deformation measured and stress curves furnished upon request

The Civil Engineering Testing Laboratory

E. G. Harris, in charge

Equipment for physical and chemical tests of cement

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Missouri State Highway Commission, Materials Laboratory, Highway  
Building, Jefferson City

F. V. Reagel, Engineer of Materials

Testing Machines

Universal - 200,000 lb. Riehle 2-screw  
" - 100,000 lb. Riehle 3-screw  
Impact - Page  
Hardness - Brinell  
" - Dorry  
Abrasion - Deval  
Cold Bend - Riehle

Equipment for physical and chemical tests of cement

Work confined entirely to the testing of materials used in  
highway construction. Only cooperative testing with other State  
Highway Departments.

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Kansas City Testing Laboratory, 700 Baltimore Ave., Kansas City

Walter M. Cross and Roy Cross, Managers

Testing Machines

Universal - 150,000 lb. Riehle

Compression & Transverse - 300,000 lb. Riehle

Equipment for physical and chemical tests of cement

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University of Missouri, Materials Testing Laboratory, Engineering  
Experiment Station, 103 Engineering Bldg., Columbia

E. J. McCaustland, Director. H. A. LaRue, Assoc. Prof. of Highway  
Engineering.

Testing Machines

Universal - 150,000 lb. Riehle 2-screw

" - 100,000 lb. Olsen 3-screw

" - 50,000 lb. Riehle 3-screw

" - 50,000 lb. Olsen 3-screw

Compression - 300,000 lb. Olsen, horizontal type, width 24 in.,  
length of specimen 10 ft.

Transverse - 50,000 lb. Olsen 3-screw, width 24 in., length  
of specimen 12 ft.

Hardness - Brinell

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates, permeability, freezing and thawing tests

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Washington University, Skinker Road & Lindell Blvd., St. Louis

J. L. VanOrnum, Head, Department of Civil Engineering.

Testing Machines

Universal - 200,000 lb. Riehle 2-screw

" - 150,000 lb. Riehle 3-screw

" - 100,000 lb. Riehle 2-screw

" - 20,000 lb. Riehle 2-screw

Compression - 200,000 lb. Olsen, hydraulic, height 17 in.  
diam. of plates 10 in.

" - 10,000 lb. P.T.L. for cement, height 5 in.  
diam. of plates 3 in.

Transverse - 10,000 lb. Riehle, length 8 ft., width 8 in.,  
height 8 in.

Impact - Page Olsen (combination attachment)

Hardness - Brinell

" - Dorry

Abrasion - Deval

Cold Bend - Riehle, adjustable, length between supports 12 in.  
width 2 in., height 1 in.

Pulsometer - 40,000 lb. Amsler (load repetition)

Equipment for physical tests of cement

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Robert W. Hunt Company, 1400 Syndicate Trust Bldg., 915 Olive  
Street, St. Louis  
Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

A. A. Bareuther, Manager, C. A. Downing, Engineer of Tests.

Testing Machines

Universal - 100,000 lb. Riehle (capacity can be increased to  
125,000 lb.)

Compression - 200,000 lb. Olsen, hydraulic

Equipment for physical and chemical tests of cement

Equipment for tensile tests of belting, and testing of  
or other material.

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Robert W. Hunt Company, Crear-Leslie Building, Kansas City  
Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

P. V. Brown, Manager

Testing Machines

Compression - 200,000 lb. Olsen, hydraulic

Equipment for physical tests of cement

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MONTANA

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Montana State School of Mines, Butte

F. A. Thomson, Pres. C. L. Wilson, Professor of Metallurgy.

Testing Machines

Universal - 100,000 lb.

Hardness - Brinell

- scleroscope

Equipment for physical tests of cement

Preferred work: Metallographic testing

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Montana State College, Engineering Laboratory, Civil Engineering  
Department, Bozeman

L. D. Conkling, Professor of Civil Engineering.

Testing Machines

Universal - 100,000 lb. Riehle 2-screw

Torsion - 4,000 ft. lb. Olsen

Equipment for physical tests of cement

Road Materials Laboratory

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NEBRASKA

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University of Nebraska, Applied Mechanics Testing Laboratory,  
Lincoln

Geo. R. Chatburn, Chair, Dept. of Applied Mechanics. C. M. Duff,  
Assoc. Prof. Applied Mechanics, Univ. of Nebraska Testing Engineer.  
State Department of Public Works.

Testing Machines

Universal - 200,000 lb. Riehle 2-screw  
" - 100,000 lb. Riehle 2-screw, longest beam 16 ft.  
" - 50,000 lb. Olsen 4-screw, longest beam 4 ft.  
" - 50,000 lb. Riehle 3-screw, longest beam 6 ft.  
Torsion - 24,000 in. lb. Olsen  
Impact - Page  
Hardness - Dorry  
Abrasion - Deval  
~~Power Hacksaw~~  
Equipment for physical tests of cement

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The Omaha Testing Laboratories, 1912 Farnam St., Omaha

W. H. Campen, President and Manager

Testing Machines

Compression - 200,000 lb. Olsen, hydraulic  
Equipment for physical and chemical tests of cement  
Equipment for testing concrete and aggregates

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Western Laboratories, 826 Q Street, Lincoln

Roy M. Green, President and Manager

Testing Machines

Compression - 200,000 lb. Olsen  
Equipment for chemical tests of cement  
Deformation measured and stress curves furnished upon request

Preferred work: Work upon materials of construction and especially  
materials used in paving.

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NEVADA

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State of Nevada, Depart. of Highways Testing Laboratory, Carson City

S. C. Durkee, State Highway Engr. F. H. Morrison, Testing Engineer

Testing Machines

Universal - 200,000 lb. Riehle 2-screw  
Compression - 100,000 lb. Riehle, hydraulic  
Impact - Page  
Abrasion - Olsen  
Equipment for physical tests of cement

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University of Nevada Testing Laboratory, University Station, Reno  
F. L. Bixby, Professor of Civil Engineering.

Testing Machines

Universal - 200,000 lb. Riehle  
Compression - 100,000 lb. Riehle, hydraulic

Equipment for physical tests of cement

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NEW HAMPSHIRE

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University of New Hampshire, Mechanical Engineering Laboratory,  
Durham

E. L. Getchell, Assistant Professor of Mechanical Engineering.

Testing Machines

Universal - 50,000 lb. Olsen 4-screw  
Torsion - 10,000 in. lb. Riehle, diameter of specimen 1 in.  
Toughness - Upton-Lewis No. 1

Equipment for physical tests of cement

Equipment for tests of concrete and aggregates

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NEW JERSEY

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Stevens Institute of Technology, The Carnegie Laboratory of Engineering, Hoboken

R. M. Anderson, Professor and Head of Department of Mech. Engr.

Testing Machines

Compression - 100,000 lb. (Philadelphia Machine Tool Co.)  
" - 50,000 lb. Olsen  
" - 10,000 lb. Olsen  
Transverse - 4,000 lb. Fairbanks  
Impact - 15 kgm Amsler

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Dr. Richard Moldenke, Watchung.

Testing Machine

Transverse - 5,000 lb. Riehle for cast iron test bars

Preferred work: Research

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Stillman & Van Siclen, Inc., Trenton

Main Office: 227 Front St., New York City

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NEW MEXICO

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University of New Mexico, Testing Materials Laboratory, Department  
of Civil Engineering, Albuquerque

A. Diefendorf, Prof. and Head of Department of Civil Engineering.

Testing Machines

Universal - 100,000 lb. Riehle

Equipment for physical tests of cement

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New Mexico State Highway Department, Materials Testing Laboratory,  
Las Cruces

L. C. Campbell, in charge.

Testing Machines

Compression - 200,000 lb. Olsen

" - 60,000 lb. Olsen, attachments for tension,  
cross-bending, etc.

Impact - Page

Hardness - Dorry

Abrasion - Deval

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

Miscellaneous tests on wood, brick, tile and other building  
and structural materials

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New Mexico College of Agriculture & Mechanic Arts, Materials Test-  
ing Laboratory, State College

Head of Dept. of C.E.

R. W. Goddard, Director. H. O. Garst, L. C. Campbell, Materials  
Engineer.

Testing Machines

Universal - 200,000 lb. Olsen

" - 60,000 lb. Olsen

Impact - Olsen for cementation tests

Hardness - Dorry

Abrasion - Deval

Compressometer - Olsen

Extensometer - Olsen

Shearing Tool - Olsen

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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## NEW YORK

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Container Testing Laboratories, Inc., 300 Fourth Ave., New York

A. W. Luhrs, Pres. Fred Wohlers, Vice-Pres. & Gen. Mgr. E. A. Dickinson, Chief Engineer.

## Testing Machines

Tension - 10,000 lb., longest specimen 48 in.

Compression - 10,000 lb., longest specimen 72 in.

Drop - Highest drop 10 ft., largest specimen 1,200 lb.

Revolving Drum - 7 ft. diam., largest specimen 15 cu. ft., 600 lb.

" " - 1,200 lb., 14 ft. diam., largest spec. 170 cu. ft.

Paper - 300 lb. Scott

" - 600 lb. Mullen

" - 600 lb. Webb

Tearing - Elmendorf

Deformation measured and stress curves furnished upon request

Shipping containers or shipping container accessories, such as fiber board containers, wooden cases, plywood boxes, wirebound boxes, wooden crates, cloth and paper bags, drums, kegs, barrels, binding materials, etc. tested. Shipping containers of all kinds designed. Surveys of shipping room practices made and units designed or redesigned.

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Pratt Institute, Mechanical Engineering Laboratory, School of Science and Technology, Brooklyn

A. C. Harper, in charge.

## Testing Machines

Universal - 100,000 lb. Olsen

" - 30,000 lb. Olsen

Compression - 700,000 lb. Watson-Stillman (tile, building blocks, etc)

Transverse - 60,000 lb. Watson-Stillman (slabs and beams)

Torsion - 60,000 in. lb. Olsen

Hardness - Brinell

" - scleroscope

Equipment for physical tests of cement

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New York Testing Laboratories, 80 Washington St., New York

L. R. Seidell, Pres. and Managing Director, G. B. Jack, Jr., Tre:  
and Director of Inspection and Tests.

Testing Machines

Universal - 100,000 lb.  
Tension - 2,000 lb.  
Transverse - 5,000 lb. (Cast iron)  
Impact - Charpy, Izod and Olsen  
Hardness - Brinell  
" - Rockwell  
" - scleroscope  
Wear -  
Strain gages and extensometers

Equipment for physical and chemical tests of cement

Deformation measured and stress curves furnished upon request

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Rensselaer Polytechnic Institute, Department of Civil Engineering,  
Troy Building, Troy

T. R. Lawson, Professor of Civil Engineering.

Testing Machines

Universal - 600,000 lb. Olsen 4-screw  
" - 300,000 lb. Olsen 4-screw  
" - 150,000 lb. Olsen 2-screw  
" - 100,000 lb. Olsen 4-screw  
" - 60,000 lb. Olsen 3-screw  
" - 50,000 lb. Olsen 4-screw  
" - 10,000 lb. Olsen 2-screw  
Compression - 1,200,000 lb. Olssn, hydraulic  
Torsion - 125,000 in. lb.  
Fatigue - White-Souther  
" - Moore  
Impact - 125 kgm Charpy Fremont  
Hardness - Brinell  
" - Rockwell  
" - scleroscope  
Abrasion - Deval

Equipment for physical tests of cement

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D. S. Kimball, Dean of the College of Engineering.

- Universal - 3,000,000 lb. Olsen
- " - 2,000,000 lb. Emery, hydraulic
- " - 400,000 lb. Riehle, beams 19 in. by 18 ft.  
longest specimen 12 ft.
- " - 150,000 lb. Olsen 3-screw
- " - 100,000 lb. Olsen
- " - 100,000 lb. Amsler, hydraulic
- " - 100,000 lb. Riehle
- " - 50,000 lb. Olsen
- " - 50,000 lb. Riehle
- Compression - Amsler-Laffon
- Transverse - 200,000 lb. Riehle
- " - 10,000 lb. Fairbanks
- " - 5,000 lb. Riehle (flexural tests), longest  
specimen 4 ft.
- Torsion - Thurston autographic
- " - 200,000 in. lb. Olsen
- " - 60,000 in. lb. Riehle, diam. 1-1/2 in. 6 ft. long
- Fatigue - Upton-Lewis
- Impact - 120 kgm Amsler-Charpy-Izod
- " - Page
- Hardness - Dorry
- Abrasion - Deval
- 10,000 lb. Olsen for wire
- Extensometers - Henning
- Self-indicating dial
- Martens mirror
- Strain Gages - ( ) Berry

Equipment for the preparation and testing of concrete and aggregates

Universal - 100,000 lb.  
Fatigue - White-Souther  
Impact - 400 lb. ft. Izod  
" - 60 kgm Fremont  
" - Landgraf-Turner, alternating impact  
Hardness - scleroscope

Preferred work: Metallographic investigations of steel and

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Union College, Materials Testing Laboratory, Schenectady

M. F. Sayre, Assoc. Professor of Mechanical Engineering.

Testing Machines

Universal - 200,000 lb. Riehle

" - 50,000 lb. Amsler

" - 5,000 lb. Riehle

Fatigue - Rotating beam

Hardness - Brinell

" - scleroscope

Apparatus for measuring deformation. Complete sets of extensometers and strain gages, including mirror extensometer

Equipment for physical tests of cement

Specializes on stress analysis problems and on precision extensometer work

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Stillman & Van Siclen, Inc., 227 Front Street, New York

Branch Laboratories: Cedarhurst, Long Island, N. Y.

Allentown, Pa.

Ardsley, N. Y.

Trenton, N. J.

I. Hochstadter, Pres. and Dir. R. C. Brumfield, Cooper Union,  
Assoc. in Mech. Engr. S. Newmark, in charge of laboratory.

Testing Machines

Universal - 200,000 lb., longest specimen 10 ft., longest beam  
" - 100,000 lb. (20 ft.)

" - 50,000 lb.

" - 20,000 lb., longest spec. 3 ft., longest beam 30  
(in.)

Tension - 2,500 lb.

Compression - 200,000 lb.

Transverse - 10,000 lb.

" - for cast iron

Torsion - 60,000 in. lb.

Fatigue - Upton-Lewis

Impact - Turner-Hatt

Hardness - Brinell

" - scleroscope

Cold Bend

Apparatus for measuring deformation:

Extensometers including Berry strain gages

" - Martens mirror

" - Ewing

Equipment for physical and chemical tests of cement

Deformation measured and stress curves furnished upon request

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Preferred work: Building materials tests

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Cooper Union, Materials Testing Laboratory, New York City

F. E. Foss, Prof. of Civil Engr. R. C. Brumfield, Asst. Prof.

Testing Machines

Universal - 200,000 lb. Olsen 4-screw, longest specimen 10 ft.  
longest beam 20 ft.

" - 100,000 lb. Olsen 3-screw

" - 50,000 lb. Riehle 2-screw

" - 50,000 lb. Olsen 3-screw

" - 50,000 lb. Olsen 4-screw

" - 20,000 lb. Olsen 3-screw

Compression - 300,000 lb. Emery, specimen 5 ft. long

Transverse - 10,000 lb. Olsen for cast iron bars

Torsion - 60,000 in. lb. Olsen

Fatigue - Upton-Lewis

Impact - Turner-Hatt

Hardness - Brinell

" - Brinell, Baby

" - Rockwell

" - scleroscope

Cold Bend - Olsen

Extensometers - Martens Mirror

" - Ewing

Strain Gages - Berry

Tensometer - Huggenberger

- 2,500 lb. Olsen for wire

Equipment for physical tests of cement

Equipment for testing aggregates and concrete, road materials,  
etc.

Deformation measured and stress curves furnished upon request

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Syracuse University, Materials Testing Laboratory, College of  
Applied Science, Syracuse

E. F. Berry, Associate Professor of Civil Engineering.

Testing Machines

Universal - 200,000 lb. Riehle 2-screw

Hardness - Brinell

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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Columbia University, Dept. of Civil Engineering Testing Laboratories,  
New York City

E. B. Lovell, Chairman of Department. A. H. Beyer, Director of  
Testing. W. J. Krefield, Engineer of Tests.

Testing Machines

Universal - 400,000 lb. Olsen  
" - 200,000 lb. Riehle 3-screw  
" - 100,000 lb. Olsen  
" -- 100,000 lb. Standard Riehle  
" - 60,000 lb. Riehle  
" - 50,000 lb. Olsen  
" - 10,000 lb. Olsen

Torsion - 50,000 ft. lb. Riehle  
" - 2,400 ft. lb. Amsler

Fatigue - Farmer

Impact - 120 lb. ft. Standard Izod

Hardness - Brinell

" - Rockwell

" - scleroscope

Strain gages and extensometers

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates. Core machine.

Deformation measured and stress curves furnished upon request

Preferred work: Tests of ferrous and non-ferrous structural materials,  
covering practically the entire field of  
engineering materials.

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The Polytechnic Institute, Materials Testing Laboratory, Department  
of Mechanical Engineering, Polytechnic Bldg., 85-99 Livingston  
Street, Brooklyn

E. F. Church, Professor and Head of Mechanical Engineering Dept.

Testing Machines

Universal - 100,000 lb. Riehle 2-screw, longest beam 10 ft.  
" - 30,000 lb. Riehle 2-screw

Torsion - 60,000 in. lb. Olsen for specimens up to 6 ft. long  
and 2 in. diameter

Fatigue - Olsen-Foster for torsion or bending

Impact - 100 lb. ft. Olsen

- 5,000 lb. Olsen for cast iron bar specimens 12 in. long  
by about 1 in. square.

Hardness - Brinell, hydraulic

" - Rockwell, 12 in. and 4 in.

" - scleroscope

Ductility Tester - Olsen Erickson, 1 in. diam. die

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Numerous extensometers, compressometers and troptometers

Equipment for physical tests of cement

Preferred work: Developmental in connection with new materials and designs.

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Touceda Laboratories, 943 Broadway, Albany

Enrique Touceda. Enrique Touceda, Jr., Supervisor of physical tests

Testing Machines

Universal - 60,000 lb., for 1 1/2 in. diam. pipe

Deformation measured and stress curves furnished upon request

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Electrical Testing Laboratories, 80th St. and East End Ave.,  
New York

P. S. Millar, Gen. Mgr. C. H. Sharp, Technical Director. F. M. Farmer, Chief Engineer.

Testing Machines

Universal - 200,000 lb. Olsen

" - 40,000 lb. Olsen

" - 20,000 lb. Olsen

" - 600 lb. Riehle

Torsion - 230,000 in. lb., 1 to 2.75 in. diam. up to 8 ft. long

Hardness - Rockwell

" - scleroscope

Strain gages - Berry, 2 in., 8 in. and 10 in. gage

Extensometer - Ames Dial, adjustable gage

Torsion deflection meter, adjustable gage

Equipment for physical and chemical tests of cement

Equipment for testing paper

Deformation measured and stress curves furnished upon request

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Stillman & Van Sielen, Inc., Cedarhurst, Long Island

Main Office: 227 Front St., New York City

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Stillman & Van Sielen, Inc., Ardsley

Main Office: 227 Front St., New York

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Robert W. Hunt Company, 55 Park Place, New York City  
Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

J. C. Ogden, Manager. J. F. Davis, Engineer of Tests.

Testing Machines

Universal - 168,000 lb. Riehle with ball bearing compression head

Hardness - Brinell  
" - Rockwell

Strain Gage - Berry for 2 in. and 8 in. specimens

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Pittsburgh Testing Laboratory, 731 Ellicott Square, Buffalo  
Main Office: Stevenson & Locusts Sts., Pittsburgh, Pa.

R. D. Wolf, Manager

Testing Machines

Compression - 200,000 lb. Watson-Stillman, hydraulic

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete

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Pittsburgh Testing Laboratory, 72 Washington St., New York  
Main Office: Stevenson & Locusts Sts., Pittsburgh, Pa.

N. C. Hoyles, Manager

Testing Machines

Universal - 150,000 lb. Olsen 4-screw  
Compression - 400,000 lb. Watson-Stillman, hydraulic  
Hardness - Brinell  
" - scleroscope

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and aggregates

Machine shop

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Charles C. Kawin Company, 110 Pearl Street, Buffalo  
Main Office: 3300 Federal St., Chicago, Ill.

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Gulick-Henderson Co., Inc., 145 W. 36th St., New York  
Associated with: The Thompson & Lichtner Co., Statler Building, Boston, Mass.

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Mr. Russell S. Greenman, 40 Manning Blvd., Albany  
Associated with: The Thompson & Lichtner Co., Statler Building, Boston, Mass.

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NORTH CAROLINA

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University of North Carolina, Materials Testing Laboratory, School of Engineering, Chapel Hill

G. M. Braune, Dean, School of Engineering. R. M. Trimble, Assist. Professor.

Testing Machines

Universal - 200,000 lb. Olsen 3-screw, longest tensile specimen 16 ft., longest beam 20 ft.

" - 100,000 lb. Riehle 3-screw with cold bend attachment

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and aggregates

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N. C. State College, Engineering Experiment Station, State College Station, Raleigh

H. B. Shaw, Director.

Testing Machines

Universal - 150,000 lb. Olsen 3-screw

" - 50,000 lb. Riehle 3-screw

" - 15,000 lb. Olsen 4-screw

Equipment for physical and chemical tests of cement

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NORTH DAKOTA

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North Dakota Agricultural College, Materials Testing Laboratory, State College Station, Fargo

R. M. Dolve, Dean.

Testing Machines

Universal - 100,000 lb. Riehle

Torsion - 60,000 in. lb. Olsen, equipped with torsion meter

Hardness - scleroscope

Equipment for physical tests of cement

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OHIO

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Ohio State University, Engineering Experiment Station, Columbus

E. A. Hitchcock, Director.

Testing Machines

Universal-1,000,000 lb.

" - 500,000 lb.

" - 400,000 lb.

Special - 80,000 lb. for 14 ft. beams, 10 by 10 floor slabs.

Preferred work: Research and developmental

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Ohio State University, Laboratory of the Department of Mechanics,  
Columbus

J. E. Boyd, Prof. of Mechanics. P. W. Ott, Assoc. Prof. S. B. Folk, Assistant Professor.

Testing Machines

Universal - 100,000 lb., longest specimen 5 ft.  
" - 50,000 lb.  
Torsion - 60,000 in. lb.  
Impact - 120 lb. ft. Charpy

Deformation measured and stress curves furnished upon request

Ohio State University, Laboratory of the Department of Mechanical Engineering, Columbus

William T. Magruder, Professor of Mechanical Engineering.

Testing Machines

Universal - 200,000 lb.  
" - 100,000 lb.  
" - 50,000 lb.  
" - 20,000 lb.  
Torsion - 4,200 in. lb.  
Hardness - Brinell  
Cold Bend

Deformation measured and stress curves furnished upon request

Preferred work: Developmental

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The Warner Laboratory of Case School of Applied Science, University Circle, Cleveland

R. H. Danforth, Professor in charge.

Testing Machines

Universal - 1,000,000 lb., column 20 ft. long  
" - 200,000 lb.  
" - 100,000 lb.  
" - 60,000 lb.  
" - 30,000 lb.  
" - 10,000 lb.  
Transverse - 300,000 lb., longest beam 20 ft.  
" - 100,000 lb., longest beam 20 ft.  
Torsion - 50,000 in. lb., specimens up to 1 1/4 in. diam. by 5 ft. long  
Impact - 65 kgm Charpy  
Hardness - Brinell  
" - scleroscope  
" - Rockwell

Equipment for physical and chemical tests of cement

Equipment for investigating faulty material

Preferred work: Research

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Louis G. Robinson Laboratories, 31 E. 4th St., Cincinnati

Fred J. Hagedorn, Chief Chemist.

Testing Machines

Universal - 100,000 lb. Riehle

Equipment for physical tests of cement

Preferred work: Physical tests and consulting foundry work

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Columbus Testing Laboratories, Inc., 755 North High St., Columbus

A. B. Braden, President.

Testing Machines

Compression - 300,000 lb., hydraulic

Abrasion - for testing floor slabs, 16 in. by 16 in.

Equipment for physical and chemical tests of cement

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University of Dayton, Materials Testing Laboratory, Department of  
Civil Engineering, Dayton

B. T. Schad, Prof. of Civil Engineering. C. J. Belz, Asst. Prof.

Testing Machines

Universal - 40,000 lb. Olsen 4-screw

" - 20,000 lb. Olsen 3-screw

Compression - 200,000 lb. Olsen, hydraulic

Transverse - 10,000 lb. Riehle, longest beam 6 in. by 9 in.  
by 10 ft.

Impact - Riehle-Page

Hardness - Dorry

Abrasion - Deval

Equipment for physical and chemical tests of cement

Preferred work: Tensile and compressive tests on metals and compressive tests of concrete cylinders

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Ohio Mechanics Institute, Central Parkway and Walnut St., Cincinnati

John T. Faig, President.

Testing Machines

Universal - 100,000 lb.

Equipment for physical tests of cement

Deformation measured and stress curves furnished upon request

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The Ohio Brass Co., Mansfield

F. I. Wolf, Engineering Department. W. F. Graham, Technical Division  
H. E. Russell, Laboratories.

Testing Machines

Universal - 50,000 lb. Olsen  
Impact - 5 lb. ft. Izod  
" - 120 lb. ft. Izod  
Hardness - Brinell (Alpha)  
" - Rockwell

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H. C. Nutting Company, Elmwood Place Station, Cincinnati  
Branch Laboratories: 8804 Superior Ave., N. E., Cleveland  
Nebraska & Water Sts., Tampa, Fla.  
Teniente Rey, No. 33, Havana, Cuba

H. C. Nutting, President. W. T. Bagel, General Manager, F. S.  
Wilson, Chief Engineer of Tests.

Testing Machines

Universal - 200,000 lb. Riehle 2-screw  
Impact - Riehle-Page  
Hardness - Brinell  
" - Riehle Dorry

Equipment for physical and chemical tests of cement

Preferred work: Work on highways or building materials, tests of  
borings

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The James H. Herron Co., 1360-1364 West Third St., Cleveland

J. H. Herron, Pres. W. A. Carlson, Phy. and Materials Testing.  
G. W. Helling, Materials Inspection.

Testing Machines

Universal - 50,000 lb.  
Compression - 200,000 lb.  
Fatigue - Rotating beam  
Impact - Izod  
Hardness - Brinell  
" - scleroscope

Equipment for physical and chemical tests of cement

Deformation measured and stress curves furnished upon request

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The Forest City Testing Laboratory Co., 507-19 Superior Building,  
Cleveland

Branch Laboratories: 623 Beech St., Toledo, O.  
429 Griswold St., Detroit, Mich.

S. J. Hamley, C. H. Lovejoy, & A. J. Schneider, in charge.

Testing Machines

Universal - 100,000 lb. Olsen 4-screw  
Compression - 200,000 lb.

Equipment for physical and chemical tests of cement

Equipment for testing asphalt and concrete

Preferred work: Research

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The Forest City Testing Laboratory Co., 623 Beech St., Toledo

Main Office: 507-19 Superior Bldg., Cleveland, O.

Fred Klenk, Branch Manager.

Testing Machines

Compression - 200,000 lb.

Equipment for testing paving materials

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Pittsburgh Testing Laboratory, 520 National Building, Cleveland

Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

T. F. Hindman, Manager.

Testing Machines

Compression - 200,000 lb. Watson-Stillman, hydraulic

Equipment for control inspection and testing of road materials

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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Pittsburgh Testing Laboratory, 314 East Front St., Youngstown

Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

W. R. Pressler, Manager.

Testing Machines

Universal - 200,000 lb. Olsen 4-screw

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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Charles C. Kawin Company, 222 W. Fourth St., Cincinnati  
Main Office: 3300 Federal St., Chicago, Ill.

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H. C. Nutting Company, 8804 Superior Avenue, N. E., Cleveland  
Main Office: Elmwood Place Station, Cincinnati, O.

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#### OKLAHOMA

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Oklahoma Testing Laboratories, 519 1/2 West Main St., Oklahoma City

Wm. Furber Smith, Owner and Manager.

##### Testing Machines

Universal - 200,000 lb. Riehle

" - 100,000 lb. Riehle

" - 50,000 lb. Riehle

Compression - 200,000 lb. Olsen, hydraulic (takes concrete  
cylinders up to 8 by 16 ft.)

Impact - Page for toughness determinations

" - Page for cementation values, etc.

Hardness - Dorry

Abrasion - Deval

Equipment for physical tests of cement

Preferred work: Consulting and inspection of materials

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#### OREGON

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Oregon Institute of Technology, Engineering Laboratory, 195 Sixth  
St., Portland

Walter Haynes, Dean of the College of Engineering.

##### Testing Machines

Universal - 50,000 lb. Olsen 4-screw

~~Equipment for physical tests of cement~~

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E. W. Lazell, 537 Railway Exchange Building, Portland

C. P. Gage, Physical Laboratory Manager.

##### Testing Machines

Universal - 50,000 lb. Riehle 2-screw

Compression - 200,000 lb., hydraulic

Abrasion - Deval

Equipment for physical and chemical tests of cement

Preferred work: Tests of building materials

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Oregon State Agricultural College, Department of Mechanics and Materials, 306 South 8th St., Corvallis

S. H. Graf, Professor of Mechanics and Materials. C. E. Thomas, Associate Professor.

Testing Machines

Universal - 150,000 lb., longest ten. spec. 36 in., longest com. spec. 50 in., longest beam 16 ft.  
 " - 50,000 lb., autographic  
 " - 30,000 lb., longest spec. 5 ft., longest beam 36 in.

Compression - 125,000 lb.

Transverse for cast iron

Torsion - 60,000 in. lb.

Fatigue - Upton-Lewis, White-Souther, Landgraf-Turner

Impact - 120 lb. ft. Izod

Cold Bend

Extensometers and compressometers

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Deformation measured and stress curves furnished upon request

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Central Inspection Bureau, 602 Bedell Building, 130 Sixth St., Portland

J. H. MacGregor, Chief Engineer

Testing Machine

Universal - 100,000 lb. Riehle 3-screw

Equipment for making tensile, compressive and hardness tests of metals

Preferred work: Steel inspection

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PENNSYLVANIA

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University of Pittsburgh Materials Testing Laboratory, O'Hara  
Street, Pittsburgh

W. F. Weiland, Assistant Professor of Mechanical Engineering.

Testing Machines

Universal - ranging from 50,000 to 200,000 lb., longest compression specimen 15 ft., longest beam 20 ft.

Transverse - 5,000 lb.

Torsion - 230,000 in. lb., longest specimen 15 ft.

Fatigue - Upton-Lewis

" - Rotating cantilever beam, Olsen

Hardness - Brinell

" - Rockwell

" - scleroscope

Equipment for physical tests of cement

Deformation measured and stress curves furnished upon request

Lehigh University, Fritz Engineering Laboratory, Bethlehem

Willis A. Slater, Director.

Testing Machines

Universal - 800,000 lb., longest tensile specimen 18 ft.  
longest compression specimen 24 ft.  
longest beam specimen 30 ft.

" - 300,000 lb., longest tensile specimen 3 ft.  
longest compression specimen 4 ft.  
longest beam specimen 20 ft.

" - 50,000 lb., longest tensile specimen 1 1/2 ft.  
longest compression specimen 1 ft. 8 in.

Tension - 20,000 lb., for wire

Torsion - will take bar 1 in. diam. up to 5 ft. long

Fatigue - R. R. Moore

Impact - 600 lb. ft. Izod

Cold Bend

Equipment for physical tests of cement

Facilities for building up special testing apparatus for  
research problems

Preferred work: Research

Drexel Institute, 32d and Chestnut Sts., Philadelphia

S. J. Leonard, Assistant Professor. J. H. Billings, Professor of  
Mechanical Engineering.

Testing Machines

Universal - 200,000 lb. Olsen 4-screw

" - 30,000 lb. Olsen 4-screw

Torsion - 50,000 in. lb. Olsen

Hardness - Brinell

" - Rockwell

" - scleroscope

Deformation measured and stress curves furnished upon request.

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E. L. Conwell & Co., 2024 Arch Street, Philadelphia

E. L. Conwell. A. S. Peiper, Engineer of Tests.

Testing Machines

Universal - 200,000 lb. Olsen

" - 150,000 lb. Riehle

Equipment for physical and chemical tests of cement

Preferred work: Tests and inspection in the construction field and engineering investigations

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W. B. Coleman & Co., Mulford Building, 15th and Wallace Sts., Philadelphia

W. B. Coleman, Engineer and Owner.

Testing Machines

Universal - 200,000 lb. Olsen 4-screw, automatic and autographic

Transverse - 5,000 lb. Olsen

Impact - 120 kgm Charpy

Hardness - Brinell, hydraulic

" - Rockwell

Equipment for physical and chemical tests of cement

Preferred work: Physical testing of iron, steel, non-ferrous alloys and road materials

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Swarthmore College, Engineering Laboratory, Hicks Hall, Swarthmore

Chas. G. Thatcher, Assoc. Prof. of Mechanical Engineering.

Testing Machines

Universal - 100,000 lb.

Tension - 15,000 lb.

Torsion - 50,000 in. lb.

Fatigue - Upton-Lewis

Hardness - Brinell, attachment for testing machine

Equipment for physical tests of cement

Deformation measured and stress curves furnished upon request

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Riehle Bros. Testing Machine Co., 1424 North Ninth St., Philadelphia

Francis Buckingham, Chief Engineer.

Testing Machines

Universal - 150,000 lb., longest tensile specimen 6 ft.

" - 50,000 lb. 3-screw

Tension - 600 lb., for wire

Many machines of different types are available which are not permanently located in the laboratory

Deformation measured and stress curves furnished upon request

Preferred work: Routine tensile tests of wire, leather, iron, steel, chain, fabrics, and transverse tests of cast iron, etc.

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Lafayette College, Materials Testing Laboratories, Department of Civil Engineering, Easton

E. H. Rockwell, Prof. of Civil Engr. and Director of the Department.  
W. S. Lohr, Assoc. Prof., Materials Testing Laboratories.

~~Testing Machines~~

Universal - 400,000 lb. Riehle 4-screw, hydraulic, longest spec. 11 ft., longest beam 25 ft.

" - 200,000 lb. Riehle 2-screw

" - 100,000 lb. Olsen 4-screw

" - 100,000 lb. Riehle 2-screw

Torsion - 125,000 in. lb. Riehle, longest specimen 15 ft. with Cold Bend attachment

" - 10,000 in. lb. Riehle, longest specimen 16 in.

Impact - Drop weight 1 kgm. Height of drop 1 meter

Hardness - Brinell

" - Rockwell

Extensometers, compressometers, deflectometers, gages, etc.

Equipped with machine shop

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Preferred work: Tests of building and construction materials, including concrete, cement, reinforced concrete and rope

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Allentown Testing Laboratory, 575 Linden St., Allentown

E. B. McCready, Consulting Engineer and Proprietor.

E. Frederick McCready, Assistant Manager.

Testing Machines

Universal - 200,000 lb. Riehle 2-screw with arrangement for beams

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Preferred work: Physical and chemical tests of cement, concrete and their aggregates

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Horace C. Knerr, Consulting Metallurgical Engineer, 1116 W. Montgomery Ave., Philadelphia

Horace C. Knerr, President.

Full equipment for tensile, hardness and impact tests  
Deformation measured and stress curves furnished upon request

Preferred work: Physical tests of metals

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Carnegie Institute of Technology, College of Engineering, Schenley Park, Pittsburgh

W. E. Mott, Director. F. M. McCullough, Prof., Mat. Test. Lab.

#### Testing Machines

Universal	-	400,000 lb.	Olsen	4-screw
"	-	100,000 lb.	Olsen	3-screw
"	-	100,000 lb.	Olsen	4-screw
"	-	50,000 lb.	Riehle	2-screw
"	-	50,000 lb.	Olsen	3-screw
"	-	50,000 lb.	Olsen	4-screw
"	-	30,000 lb.	Olsen	4-screw
"	-	15,000 lb.	Riehle	2-screw
Transverse	-	280,000 lb.	Amsler	for uniform load on beam 15 ft. long
"	-	5,000 lb.	Riehle	
Torsion	-	1,000 lb. ft.	Amsler	
Fatigue	-	Rotating beam specimen	2/10 in. diameter	
"	-	"	"	3/10 in. "
"	-	"	"	1-5/16 in. "
"	-	"	"	3/8 in. chains
Impact	-	75 lb. ft.	Charpy	
Hardness	-	Brihell		
"	-	Rockwell		
"	-	scleroscope		
Abrasion	-	Deval, Olsen		

Equipment for physical tests of cement  
Equipment for the preparation and testing of concrete and aggregates

Preferred work: Investigational

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Pittsburgh Testing Laboratory, Stevenson & Locust Streets,  
Pittsburgh

Branch Laboratories: 1704 Second Ave., No., Phoenix Bldg.,  
Birmingham, Ala.  
704 So. Nebraska Ave., Tampa, Fla.  
205 West Wacker Drive, Engineers Bldg.,  
Chicago, Ill.  
816 Howard Ave., New Orleans, La.  
429 Wayne St., Detroit, Mich.  
731 Ellicott Square, Buffalo, N. Y.  
72 Washington St., New York, N. Y.  
520 National Bldg., Cleveland, O.  
314 East Front St., Youngstown, O.  
235 Ferry St., Easton, Pa.  
1713 Sansom St., Philadelphia, Pa.  
Universal, Pa.  
Santa Fe Building, Dallas, Texas  
Chronicle Building, Houston, Texas

A. R. Ellis, Vice-President.

Testing Machines

Universal - 750,000 lb. Riehle 3-screw, high column  
" - 250,000 lb. Olsen 4-screw  
" - 50,000 lb. Olsen 4-screw  
" - 20,000 lb. Olsen 4-screw  
" - 2,000 lb. Olsen 4-screw

Torsion - 60,000 in. lb. Olsen

Impact - Avery Izod

Hardness - Brinell

" - Rockwell

" - scleroscope

Equipment for tensile tests at high temperatures

- Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

Machine shop. Special equipment of many kinds and character

Preferred work: Research problems

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Pittsburgh Testing Laboratory, 235 Ferry Street, Easton

Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

Geo. W. Kaiser, Manager.

Equipment for physical and chemical tests of cement

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The Erie Laboratory, 1519 French St., Erie

James A. Evans, Proprietor

Testing Machines

Universal - 100,000 lb. Riehle 3-screw

Equipment for physical and chemical tests of cement

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Gettysburg College Materials Laboratory, No. Washington St.,  
Gettysburg

C. G. Reen, Assistant Professor of Civil Engineering.

Testing Machines

Universal - 100,000 lb. Riehle 4-screw

Equipment for physical tests of cement

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Laboratory of University of Pennsylvania, Department of Civil  
Engineering, 33d and Locust Sts., Philadelphia

H. C. Berry, Prof. of Materials of Construction Laboratory.

W. H. Barton, Jr., Assistant Professor of Highway Materials.

Testing Machines

Universal - 30,000 to 600,000 lb. The largest is an Olsen  
4-screw, longest compression specimen 24 ft.,  
longest tensile specimen 20 ft., longest beam  
20 ft. up to 200,000 lb. at any point

Torsion - 60,000 in. lb.

Impact - Izod and Turner-Hatt

" - Page

Hardness - Brinell

" - scleroscope

" - Dorry

Abrasion - Deval

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

Deformation measured and stress curves furnished upon request

Preferred work: Work with a research value and unusual tests

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The Engineering Experiment Station, State College

R. L. Sackett, Dean and Director. F. G. Hechler, Prof. of Engr. Research. P. B. Breneman, Prof. of Mech. and Mat. of Construction.

Testing Machines

Universal - 100,000 lb. Riehle  
" - 100,000 lb. Olsen  
" - 100,000 lb. Riehle, automatic  
" - 50,000 lb. Olsen  
Transverse - 200,000 lb. Riehle, for columns  
" - 10,000 lb. Olsen, autographic  
" - 4,000 lb. Riehle  
Torsion - 60,000 in. lb. Olsen  
Impact - Turner  
" - Landgraf Turner  
Cold Bend - Olsen  
- 20,000 lb. Olsen for wire  
Equipment for hardness testing  
Equipment for physical and chemical tests of cement  
Instruments for measuring deformation

Preferred work: Problems and investigational work

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Robert W. Hunt Company, Professional Bldg., Pittsburgh  
Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

D. W. McNaugher. W. E. Golding, Engineer of Tests.

Testing Machines

Universal - 100,000 lb. Olsen with counterpoise permitting use  
as 10,000 lb. machine  
Compression - 200,000 lb. Olsen, hydraulic  
Strain Gages for 2 in. and 8 in. specimens

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates

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Pittsburgh Testing Laboratory, Universal  
Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

Frank Lak, Manager.

Equipment for physical and chemical tests of cement

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Stillman & Van Siclen, Inc., Allentown  
Main Office: 227 Front St., New York City

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Pittsburgh Testing Laboratory, 1713 Sansom St., Philadelphia  
Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

G. K. Gilmore, Manager

Testing Machines

Compression - 150,000 lb. Watson-Stillman, hydraulic

Equipment for the preparation and testing of concrete and aggregates

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Froehling & Robertson, Inc., Northampton  
Main Office: 814 West Cary St., Richmond, Va.

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PHILIPPINE ISLANDS

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Bureau of Science, Physical Testing Laboratory, Manila

W. H. Brown, Director of the Bureau of Science. F. D. Reyes,  
Physical Testing Laboratory.

Testing Machines

Universal - 200,000 lb. Olsen 4-screw

" - 45,000 lb. Olsen 4-screw

Compression - 30,000 lb. Olsen, hydraulic

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and aggregates

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RHODE ISLAND

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Brown University, The Engineering Division, Providence

W. H. Kenerson, Professor in charge.

Testing Machines

Universal - 400,000 lb. Riehle, longest ten. & com; spec. 10 ft  
longest transverse specimen 20"

" - 50,000 lb. Riehle

Tension - 300 lb. Scott

" - 50 lb. Scott

Torsion - 26,000 in. lb. Olsen

Fatigue - Repeated stress

Impact - 240 lb. ft. Amsler, equipped for Charpy, Izod and  
tensile tests

Hardness - Brinell, Olsen

" - Rockwell

" - scleroscope

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and aggregates

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SOUTH CAROLINA

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The Citadel, The Citadel Engineering Laboratory, Charleston

L. S. Le Tellier, Head of Engr. Dept. J. Anderson, Associate Prof.  
of Civil Engr. H. C. Haynes, Assistant Prof. of Civil Engineering.

Testing Machines

Universal - 150,000 lb. Olsen 3-screw, with shear, cold bend  
and transverse tools

Impact - 2 kgm Riehle for rock

Hardness - Dorry

Abrasion - Deval

Strain Gages - Berry

Extensometer - Riehle-Yale

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

Preferred work: Tests on sand, stone, cement and concrete, also on  
steel and iron

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Clemson Agricultural College, Mechanical Engineering Laboratory,  
Clemson College

B. E. Fernow, Professor in charge.

Testing Machines

Universal - 100,000 lb. Olsen 4-screw

" - 50,000 lb.

Torsion - 50,000 in. lb. Olsen

Equipment for physical tests of cement

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SOUTH DAKOTA

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University of South Dakota, Engineering Testing Laboratory, College  
of Engineering, Vermillion

E. J. Stocking, Assistant Professor of Civil Engineering.

Testing Machines

Universal - 100,000 lb. Riehle 4-screw

" - 80,000 lb. Riehle

Compression - 200,000 lb. Olsen

Torsion - Riehle

Impact - Olsen, Standard for Macadam Rock

Hardness - Brinell

" - Dorry

Abrasion - Riehle

Tile Testing Machine

2 Extension and compression micrometers

Equipment for physical and chemical tests of cement

Preferred work: Tests on building and road materials.

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South Dakota State School of Mines, Civil Engineering Department,  
Rapid City

J. Charles Rathbun, Prof. and Head of Dept. of Civil Engineering.

Testing Machines

Universal - 100,000 lb. Riehle 2-screw  
Impact - Olsen  
Abrasion - Deval  
2 Chattillion stress determiners  
Strain Gage - Berry

Equipment for physical and chemical tests of cement

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TENNESSEE

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Barrow-Agee Laboratories, Inc., 60 North Third St., Memphis

Branch Laboratories: Little Rock, Ark.

Pearl St., Jackson, Miss.

P. O. Box 853, Shreveport, La.

G. Worthen Agee, President. E. R. Barrow, Sec. & Treas. J. H.  
Bateman, C. E., Testing and Inspection Department

Testing Machines

Universal - 200,000 lb. Olsen

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

Preferred work: Design and field control of concrete by water cemen  
ratio, testing and inspecting of construction and  
paving materials of all kinds.

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The University of Tennessee, Department of Civil Engineering,  
Knoxville

N. W. Dougherty, Professor of Civil Engineering.

Testing Machines

Universal - 200,000 lb. Olsen 3-screw  
" - 100,000 lb. Riehle 3-screw  
" - 100,000 lb. Riehle 2-screw  
" - 50,000 lb. Olsen 3-screw  
" - 20,000 lb. Olsen 4-screw

Transverse - 10,000 lb. Riehle, specimens up to 8 ft.

Torsion - 60,000 in. lb.

Equipment for physical and chemical tests of cement

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Froehling & Robertson, Inc., Nashville  
Main Office: 814 West Cary St., Richmond, Va.

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Froehling & Robertson, Inc., Kingsport  
Main Office: 814 West Cary St., Richmond, Va.

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Froehling & Robertson, Inc., Chattanooga  
Main Office: 814 West Cary St., Richmond, Va.

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TEXAS

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Agricultural and Mechanical College of Texas, Texas Engineering  
Experiment Station, College Station

F. E. Giesecke, Director.

Testing Machines

Universal - 300,000 lb. Riehle 4-screw  
" - 100,000 lb. Riehle 2-screw  
" - 50,000 lb. Olsen 3-screw  
Torsion - 50,000 in. lb. Olsen

Equipment for physical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates

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El Paso Testing Laboratories, El Paso

V. L. Sullivan, Owner

Equipment for physical and chemical tests of cement

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Texas Technological College, Lubbock

J. F. Murdough, Head of Department of Civil Engineering.

Testing Machines

Universal - 200,000 lb. Olsen 3-screw  
Impact  
Hardness - Brinell  
" - Dorry  
Abrasion - Deval  
Cold Bend Apparatus

Equipment for physical tests of cement  
Equipment for the preparation and testing of concrete and  
aggregates

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Rice Institute, Main Boulevard, Houston

J. H. Pound, Assistant Professor of Mechanical Engineering.

Testing Machines

Universal - 200,000 lb.

" - 100,000 lb.

" - 50,000 lb.

Torsion - 60,000 in. lb.

Equipment for physical and chemical tests of cement

Preferred work: Work on Strength of materials

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Pittsburgh Testing Laboratory, 1025 Santa Fe Bldg., Dallas  
Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

L. D. Bustin, Manager.

Testing Machines

Universal - 150,000 lb. Riehle 4-screw, special

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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Pittsburgh Testing Laboratory, Chronicle Building, Houston  
Main Office: Stevenson & Locust Sts., Pittsburgh, Pa.

C. W. Terry, Manager.

Testing Machines

Compression - 200,000 lb. Watson-Stillman, hydraulic

" - 50,000 lb. Pittsburgh Instrument Mfg. Co., for  
pipe testing

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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Southwestern Laboratories, 828 1/2 Monroe St., Fort Worth  
Associated with: The Thompson & Lichtner Co., Statler Build-  
ing, Boston, Mass.

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UTAH

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University of Utah, School of Mines and Engineering, Mechanics  
Laboratory, Salt Lake City

R. B. Ketchum, Dean of College of Engineering. E. H. Beckstrand,  
Professor of Mechanical Engineering.

## Testing Machines

Universal - 100,000 lb. Riehle  
Transverse - 20,000 lb., 60 in. beam  
" - 5,000 lb., 30 in. beam  
Torsion - 120,000 in. lb.  
Impact - Olsen  
Hardness - Brinell, Riehle

Equipment for physical and chemical tests of cement

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VIRGINIA

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Virginia Polytechnic Institute, Materials Testing Laboratory,  
Blacksburg

J. S. A. Johnson, Director of Engineering Experiment Station

## Testing Machines

Universal - 100,000 lb. Riehle 2-screw  
" - 100,000 lb. Olsen 3-screw, longest beam 16 ft.  
Compression - 200,000 lb. Olsen, hydraulic  
Transverse - 10,000 lb. Riehle  
Torsion - 60,000 in. lb. Olsen  
Impact - 30 lb. in. for bearing metals  
Hardness - Rockwell  
" - Scleroscope

Instruments for measuring deformation

Equipment for physical and chemical tests of cement

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Virginia Military Institute, Materials Testing Laboratory, Depart-  
ment of Civil Engineering, Lexington

J. A. Anderson, Professor of Civil Engineering.

## Testing Machines

Universal - 200,000 lb. Riehle 4-screw  
Impact - Page  
Hardness - Brinell  
" - Dorry  
Abrasion - Deval  
Strain Gages - Berry

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

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University of Virginia, Experimental Engineering Laboratory,  
Charlottesville

C. Henderson, Associate Professor of Experimental Engineering.

Testing Machines

Universal - 200,000 lb. Olsen, arranged for transverse tests of  
beams up to 18 ft. in length

" - 100,000 lb. Olsen

" - 100,000 lb. Riehle with autographic attachment

Transverse - 10,000 lb. Olsen, for tests of cast iron and  
small timber specimens

Torsion - 50,000 in. lb. Olsen

Impact - 100 lb. ft. Olsen

Hardness - scleroscope

Abrasion - Deval

- 10,000 lb., for tensile tests of wire

Apparatus for measuring deformation:

Extensometer - Olsen

" - Marshall

" - Riehle (improved) arranged for 8 in. and  
2 in. gage lengths

" - Ewing

Combination extensometer-compressometer for 2 in. and 3 in.  
gage lengths. Suitable for use in compression tests of 2 in.  
by 4 in. cement mortar cylinders

Compressometer - Olsen

" - Riehle

Deflectometer - Olsen

Equipment for physical and chemical tests of cement

Equipment for the preparation and testing of concrete and  
aggregates

Preferred work: Tests of structural materials

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Froehling & Robertson, Inc., 814 West Cary St., Richmond

Branch Laboratories: Birmingham, Ala.

Ragland, Ala.

Norfolk, Va.

Fordwick, Va.

Nashville, Tenn.

Kingsport, Tenn.

Chattanooga, Tenn.

Northampton, Pa.

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S. H. Sheib, Vice-President and Secretary.

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## Testing Machines

Universal - 100,000 lb. Olsen 4-screw  
Impact - Page  
Hardness - Dorry  
Abrasion - Deval

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and aggregates

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Froehling & Robertson, Inc., Norfolk

Main Office: 814 West Cary St., Richmond, Va.

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Froehling & Robertson, Inc., Fordwick

Main Office: 814 West Cary St., Richmond, Va.

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WASHINGTON

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The State College of Washington, Engineering Exp. Station, Pullman

H. V. Carpenter, Dir. of Engr. Exp. Station. H. H. Langdon, Prof.  
of Mechanical Engineering, Materials Testing Laboratory.

## Testing Machines

Universal - 20,000 lb. Olsen  
Compression - 200,000 lb. Riehle 2-screw, equipped for 16 ft.  
beams, columns in compression up to  
5 ft.  
" - 200,000 lb. Olsen, for standard concrete cylinders  
Fatigue - Farmer type  
Extensometers of own make

Equipment for physical tests of cement  
Equipment for the preparation and testing of concrete and aggregates

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University of Washington, Materials Testing Laboratory, Seattle

Ira L. Collier, Assistant Professor of Civil Engineering.

## Testing Machines

Universal - 200,000 lb. Olsen, hydraulic, for concrete testing  
" - 200,000 lb. Olsen 4-screw, longest specimen 12 ft.  
" - 100,000 lb. Riehle 2-screw  
" - 60,000 lb. Riehle 2-screw  
" - 30,000 lb. Olsen 4-screw  
Torsion - 60,000 in. lb. Olsen  
Impact - 500 lb. ft.

Equipment for physical and chemical tests of cement  
Equipment for the preparation and testing of concrete and aggregates

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Laucks Laboratories, Inc., 314 Maritime Building, Seattle

I. F. Laucks, President.

Testing Machines

Universal - 200,000 lb.

Equipment for chemical tests of cement

Equipment for plywood testing

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Preferred work: Analytical, Process and Plant Consultation

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Robert W. Hunt Company, Seattle

Main Office: 445 N. Sacramento Blvd., Chicago, Ill.

A. M. Hickox, Manager.

Testing Machines

Universal - 100,000 lb. Olsen

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and aggregates

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WEST VIRGINIA

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West Virginia University, Testing Materials Laboratory, College of Engineering, Morgantown

John B. Grumbein, Professor of Steam & Experimental Engineering.

Testing Machines

Universal - 400,000 lb. Olsen 4-screw

" - 50,000 lb. Riehle 4-screw

" - 20,000 lb. Riehle 4-screw, automatic

Transverse - 10,000 lb. Riehle

Torsion - 60,000 in. lb. Riehle

Hardness - Brinell

" - scleroscope

Equipment for physical and chemical tests of cement

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WISCONSIN

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Marquette Testing Laboratory, 1200 Michigan St., Milwaukee

E. D. Roberts, Director of Dept. of Civil Engineering.

Testing Machines

Universal - 50,000 lb. Riehle 3-screw

Compression - 200,000 lb. Olsen

Impact - 100 lb. ft. Olsen

Cross Bend - Olsen for 12 in. and 24 in. spans.

Equipment for physical and chemical tests of cement

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Preferred work: Tests of building materials

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University of Wisconsin, Materials Testing Laboratory, College of Engineering, Madison

M. O. Withey, Prof. of Mechanics, Materials Testing Laboratory.

Testing Machines

Universal - Capacities 10,000 lb. to 200,000 lb. (7 machines)  
" - 600,000 lb., hydraulic, longest specimen 10 ft.  
longest beam 20 ft.

Transverse - 100,000 lb., longest beam 22 ft.

Torsion - Thurston

" - Riehle, longest specimen 15 ft.

Fatigue - R. R. Moore

Impact - Russell

Hardness - Brinell

" - Rockwell

" - scleroscope

Equipment for physical tests of cement

Equipment for the preparation and testing of concrete and aggregates

Preferred work: Tests of building materials

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Materials Laboratory, Wisconsin Highway Commission, Madison

C. R. Stokes, Materials Engineer.

Testing Machines

Universal - 200,000 lb. Riehle 3-screw

" - 100,000 lb. Riehle 2-screw

" - 50,000 lb. Riehle 2-screw

" - 50,000 lb. Olsen 4-screw

" - 20,000 lb. Olsen 4-screw

" - 10,000 lb. Olsen 4-screw

Transverse - 50,000 lb. Olsen, hydraulic

Abrasion - Deval

" - Dorry

Equipment for physical tests of cement

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WYOMING

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Wyoming State Highway Department, Capitol Building, Cheyenne

I. E. Russell, in charge.

Testing Machines

Universal - 200,000 lb. Riehle 2-screw

Abrasion - Deval

Equipment for physical and chemical tests of cement.

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